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Myxomycete studies.—Degenerating nuclei have been observed in young sporangia of various Myxomycetes. JAHN²⁶ finds that at an early stage in the development of the sporangium nuclei fuse in pairs, and that the degenerating nuclei are those which have failed to fuse. Preceding sporogenesis JAHN claims to have found synapsis and a reduction of chromosomes. In Ceratiomyxa the mature spore has four nuclei. When the spore germinates there is another mitosis, and eight uninucleate swarmspores are produced from the amoeba. Swarmspores, amoebae, and plasmodia seem to have the reduced number of chromosomes, the $2x$ generation being confined to a comparatively short period in the development of the sporangium.—CHARLES J. CHAMBERLAIN.

A bacterial plant-tumor.—SMITH and TOWNSEND²⁷ have demonstrated that a gall occurring on the cultivated "marguerite" (*Chrysanthemum frutescens*) is caused by a bacterium, for which they propose the name *Bacterium tumefaciens*. The organism was isolated, and in some of the experiments 100 per cent. of the inoculations gave positive results, while the check plants remained free from tumors. As the authors say, "the number of vegetable galls known positively to be due to bacteria is not very great. The discovery of a new one of undoubtedly bacterial origin, therefore, is of considerable interest to plant pathologists, and may be of some interest to animal pathologists, especially to those interested in determining the origin of cancerous growths."—J. M. C.

Rate of growth in Jamaican forests.—SHREVE²⁸ has studied the rate of leaf growth in the rain-forest of the Jamaican mountains, and reaches the following conclusions: (1) that the rate of leaf growth is very slow as compared with that in tropical trees in which it has already been measured; (2) that the renewing foliage of deciduous trees does not grow more rapidly than that of evergreen broad-leaved trees; and (3) that the prevalence of conditions unfavorable to photosynthesis and transpiration would seem to offer at least a partial explanation of the slow rates of growth.—J. M. C.

Potato scab.—MORSE²⁹ has recently published a summary of our present knowledge of the scab of Irish potatoes and of the methods in vogue for its prevention. In addition to the well-known treatment of the uncut tubers with a solution of formaldehyde or with a solution of corrosive sublimate, an account is given of the newer treatment with formaldehyde gas generated by the heat arising from the chemical action due to pouring the formaldehyde over some

²⁶ JAHN, E., Myxomycetenstudien. 6. Kernverschmelzungen und Reduktionsteilungen. Ber. Deutsch. Bot. Gesells. **25**:23-26. 1907.

²⁷ SMITH, ERWIN F., and TOWNSEND, C. O., A plant-tumor of bacterial origin. Science N. S. **25**:671-673. 1907.

²⁸ SHREVE, FORREST, Studies on rate of growth in the mountain forests of Jamaica. Johns Hopkins Univ. Circ. **1907**:no. 3. 31-37.

²⁹ MORSE, W. J., The prevention of potato scab. Bull. Maine Exp. Sta. **141**:81-92. 1907.

potassium permanganate. This new method gives very good results and is particularly useful when large quantities of tubers are to be treated.—E. MEAD WILCOX.

Mitotic figures.—The nature of the forces which determine the achromatic figure is discussed by HARTOG,³⁰ and speculations as to processes occurring in the living cell are illustrated by ingenious experiments. Finely pulverized magnetite under the influence of magnets was made to take the form of the familiar mitotic figures. Photographs of these magnetic figures showing centrosomes, centro-spheres, polar radiations, mantle fibers, and central spindles are given. Tripolar and quadripolar spindles were easily produced.—CHARLES J. CHAMBERLAIN.

The xerophytic character of gymnosperms.—Miss STOPES³¹ has brought together the data in reference to xerophily among the gymnosperms, and concludes "that the xerophytic characters of the Coniferales in many cases are not adaptations to xerophytic conditions in their own times, nor are they 'inherited' from the remote past as vestigial characters, but are the result of physiological limitations of the type of wood in this ancient and incompletely evolved group. In other words, their 'xerophytism' is not ecological, but phylogenetic."—J. M. C.

Embryogeny of Gnaphalium.—The occurrence of parthogenesis in Antennaria suggested to SCHILLER³² an examination of the nearly related genus Gnaphalium. A study of *G. supinum*, *G. silvaticum*, and *G. uliginosum* showed the normal formation of four megasporangia in the nucellus, a normal embryo sac with the rather extensive antipodal development characteristic of many Compositae, and the regular occurrence of double fertilization. When pollination is prevented no embryos are formed.—CHARLES J. CHAMBERLAIN.

Course of pollen tube in Sibbaldia.—According to ALBANESE,³³ the growth of the integument in *S. procumbens* continues until the micropyle is entirely closed. The pollen tube grows through the tissues of the integument and nucellus and thus reaches the embryo sac. This course of the pollen tube and also the described cases of chalazogamy are regarded not as primitive conditions but as variations from the porogamic type. Sibbaldia often shows several embryo sacs in a single nucellus.—CHARLES J. CHAMBERLAIN.

³⁰ HARTOG, MARCUS, The dual force of the dividing cell. Part I. The achromatic spindle figure illustrated by magnetic chains of force. Proc. Roy. Soc. London **76**: 548–675. *pls. 9–11.* 1905.

³¹ STOPES, M. C., The "xerophytic" character of the gymnosperms; is it an "ecological" adaptation? New Phytol. **6**:46–50. 1907.

³² SCHILLER, JOSEF, Untersuchungen über die Embryogenie in der Gattung Gnaphalium. Oesterr. Bot. Zeits. **57**:137–142. *pl. 5.* 1907.

³³ ALBANESE, NICOLÒ, Ein neuer Fall von Endotropismus des Pollenschlauches und abnormer Embryosacksentwicklung bei *Sibbaldia procumbens* L. Sitzber. Kais. Akad. Wiss. Wien **113**:1–24. *pls. 1–2.* 1904.